

## COLISTIN (COLISTINMETHANESULPHONATE) IN EXPERIMENTAL SYPHILIS\*

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Colistin is a polypeptide antibiotic first isolated in 1950 from *Bacillus colistinus*, which has recently become available for intramuscular use as colistin-methate sodium (Coly-Mycin,† injectable). This antibiotic resembles the polymyxins in both structure and "spectrum", but it is considered to have a wider therapeutic index and to produce less pain on intramuscular injection.

It possesses bacteriostatic and bacteriocidal activity against a wide variety of Gram-negative bacteria, but has considerably less activity against Gram-positive bacteria. One notable exception to its effect on Gram-negative organisms is the *Proteus* group (Kirby, and Roberts, 1961; Schwartz, Warren, Barkley, and Landis, 1960). Nothing is known of its activity against *Treponema pallidum*, the causative organism of syphilis.

This paper reports the effect of intramuscular colistin in experimental rabbit syphilis.

### Material and Methods

Adult male rabbits, each with six dark-field positive cutaneous chancres in the skin of the back, were arranged in six-animal groups. One group was not treated. Other groups were given aqueous colistin intramuscularly every 8 hours for 6 days in doses of either 1, 5, or 10 mg./kg./day. Clinical and serological observations were continued for 3 months, including periodic notation of weight, measurement of lesions, dark-field examination of lesion exudates, palpation of testes, and microscopic examination of testicular aspirates, and quantitative V.D.R.L. tests. The effect of treatment was determined by clinical

examination of the lesions, the presence or absence of demonstrable *T. pallida* in chancre exudates, serological findings, and the progression of the disease as manifested by development of dark-field-positive secondary lesions (Garson, Washburn, and Clark, 1960).

### Results

All the rabbits remained dark-field-positive during the primary stage of the infection, and no significant differences in the rate of progression or regression, the maximum size attained, or the duration of the chancres of the treated and untreated animals occurred. The disease progressed to dark-field-positive secondary lesions in every animal. The serological findings in the various dosage groups were comparable to those in the controls.

### Discussion

The increasing incidence of penicillin sensitivity (Brown, Simpson, and Price, 1960) justifies the search for alternative anti-syphilitic agents. As was first demonstrated with streptomycin (Johnson and Adcock, 1946), many antibiotics other than penicillin have shown inhibiting effects on the symptoms of syphilis. An understanding of the effect of a given therapeutic regimen on undiagnosed syphilis, especially inapparent or incubating primary syphilis, is important. With widespread and frequently indiscriminate use of antibiotics the rule, patients receiving treatment for other diseases may also have syphilis. Treatment schedules having only minimal effect on the treponeme might delay or mask symptoms without curing the patient.

While no toxic reactions were observed, it is doubtful whether higher concentrations would be

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† Trade name for sodium colistinmethanesulphonate of Warner-Chilcott Laboratories, the company which supplied the compound for this study.

more effective in the treatment of syphilis. Assuming *T. pallidum* to be no more susceptible to colistin in man than in the rabbit, use of the compound in currently recommended doses for other diseases will have no effect on concomitant syphilis infection.

### Summary

Intramuscular injections of colistinmethanesulphonate in aqueous solution every 8 hours for 6 days in doses of 1, 5, and 10 mg./kg./day had no effect on primary rabbit syphilis.

### REFERENCES

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### La syphilis expérimentale traitée par la Colistine

#### RÉSUMÉ

Des injections intramusculaires (de 1, 5, et 10 mg./kg. par jour) de colistinméthanesulphonate (Colistine) suspendu dans l'eau faites toutes les 8 heures pendant 6 jours n'eurent aucun effet sur la syphilis expérimentale chez le lapin.